EXECUTIVE SUMMARY

This report presents the statistical evaluation of baseline contaminant concentrations at Operable Unit 1 (OU 1), Hill Air Force Base (Hill AFB), Utah. The objective of this statistical evaluation is to determine baseline contaminant concentrations prior to initiation of final remedial actions at OU 1. This evaluation and the ground-water monitoring data which will be collected during the operation of the OU 1 remedy will be used as a tool to assess the overall performance of the remedy and to allow for an assessment for when remedial actions are complete.

The baseline concentrations were determined using the results of one-year of ground water monitoring data (Sampling Rounds 13 through 16). Baseline concentrations for those indicator compounds detected above MCLs were determined based on the upper 95 percent confidence limit of the mean concentrations from Sampling Rounds 13 through 16. The following indicator compounds were selected for this baseline concentration evaluation:

- 1,2- Dichlorobenzene (MCL 600 ppb)
- 1,4-Dichlorobenzene (MCL 75 ppb)
- 1,3-Dichlorobenzene (No MCL Established)
- cis-1,2 Dichloroethene (MCL 70 ppb)
- Trichloroethene (MCL 5 ppb)
- Benzene (MCL 5 ppb)
- 1,1,1-Trichlororethane (MCL 200 ppb)
- Tetrachloroethane (MCL 5 ppb)
- Vinyl Chloride (MCL 2 ppb)
- Ethylbenzene (MCL 700 ppb)
- Toluene (MCL 100 ppm)
- Total Xylenes (MCL 10,000 ppb)
- Arsenic (MCL 50 ppb).

These compounds were selected because they represent the primary risk drivers at OU 1 and have the largest aerial extent in both on- and off-Base OU 1 ground water. Statistical analyses were performed only for those indicator compounds detected in Sampling Rounds 13 through 16 at concentrations which exceed their respective Maximum Contaminant Levels (MCL) as currently promulgated in the Safe Drinking Water Act.

To assess sampling method and laboratory variability present in the baseline sampling data, four ground-water samples each were collected on a quarterly basis from each of the selected monitoring wells. Comparisons were made between contaminant concentration and environmental parameters (i.e. ground water elevation and oxidation/reduction potential) to evaluate the relationship between contaminant concentration and these parameters. In addition, a comparison was made between the historic data (Sampling Rounds 1 through 12) and the baseline sampling data to assess whether the two populations are representative of each other.

The results of the baseline statistical evaluation indicates that the site is not changing based on a 95% confidence level. This implies that the site is relatively stable. In general, the baseline mean concentrations were not significantly different from the historical data. There were some visual seasonal trends and trends observed between ground-water elevation and contaminant concentration. The statistical evaluation indicated a few significant trends but the majority were not significant at a 95% confidence level. There were several on-Base wells with statistically significant decreasing contaminant concentrations with time and one on-Base well with a statistically significant increasing contaminant concentration with time. The remaining on- and off-Base wells did not have any statistically meaningful results at a 95% confidence level.